WHAT IS CLAIMED IS:

1. A pH measurement system for a buoyant water chlorinator, said measurement system comprising:

a pH sensor for generating signals representative of pH level of a liquid, a pH measurement circuit for converting signals output by said pH sensor to voltage signals representative of pH level; a pH level display for displaying the value of the liquid pH, and a processor coupled to said pH measurement circuit and said pH level display for converting said voltage signals representative of pH level to pH level display driving signals;

a manually operable calibration switch coupled to said processor for initiating a calibration routine performed by said processor;

a manually operable start switch coupled to said processor for initiating a liquid sample measurement routine performed by said processor; and

a source of electrical power for providing power to said sensor, said circuit, said processor and said display.

2. The invention of claim 1 wherein said calibration routine includes a first delay period during which said voltage signals representative of pH level are not displayed on said pH level display.

3. The invention of claim 1 wherein said liquid sample measurement routine includes a second delay period during which said voltage signals representative of pH level are not displayed on said pH level display.

4. The invention of claim 1 wherein said pH measurement circuit includes a plurality of operational amplifiers, a first resistance for setting the value of an isopotential voltage coupled to said amplifiers, a second resistance for setting the value of a calibration voltage coupled to said amplifiers, and a third variable resistance for adjustably setting the value of a slope voltage coupled to said amplifiers.

5. The invention of claim 4 wherein said first resistance is a fixed value resistance.

6. The invention of claim 4 wherein said second resistance is a fixed value resistance.

7. The invention of claim 1 wherein said source of electrical power comprises a chemical battery.

8. The invention of claim 1 wherein said source of electrical power comprises a solar cell.

9. The invention of claim 1 wherein said buoyant water chlorinator includes a buoyant housing having an upper surface; and wherein said calibration switch is mounted on said upper surface.

10. The invention of claim 1 wherein said buoyant water chlorinator includes a buoyant housing having an upper surface; and wherein said start switch is mounted on said upper surface.

11. A method of calibrating a pH measurement system having a pH sensor for generating signals representative of pH level of a liquid, a pH measurement circuit for converting signals output by said pH sensor to voltage signals representative of pH level; a pH level display for displaying the value of the liquid pH, a processor coupled to said pH measurement circuit and said pH level display for converting said voltage signals representative of pH level to pH level display driving signals, a manually operable calibration switch coupled to said processor for initiating a calibration routine performed by said processor, and a source of electrical power for providing power to said sensor, said circuit, said processor and said display; said method comprising the steps of:

(a) immersing the pH sensor in a liquid of known pH value;

(b) applying electrical power to the sensor, the measurement circuit, the display, and the processor;

(c) operating the calibration switch to initiate the calibration routine;

(d) delaying the display of the voltage signals representative of pH level for a first delay period;

(e) after the end of the first delay period, displaying the voltage signals representative of pH level;

(f) comparing the displayed pH level value with the known pH value; and

(g) proceeding to a liquid sample measurement if the displayed pH level value matches the known pH value.

12. The method of claim 11 wherein said step (a) of immersing is preceded by the step of selecting a pH value lying at the mid-point of the expected range of pH values of the liquid.

13. The method of claim 11 wherein steps (a) and (b) are performed in reverse order.

14. The method of claim 11 further including performing the following additional steps when the displayed pH level value does not match the known pH value:

(h) removing power from the system;

(i) reapplying power to the system; and

(j) repeating steps (a) through (f).

15. The method of claim 11 wherein said system further includes a manually operable start switch coupled to said processor for initiating a liquid sample measurement routine performed by said processor; and wherein said step (g) of proceeding is performed by the following steps:

(i) immersing the pH sensor in a liquid of unknown pH value;

(ii) applying electrical power to the sensor, the measurement circuit, the display, and the processor;

(iii) operating the start switch to initiate the liquid sample measurement routine;

(iv) delaying the display of the voltage signals representative of pH level for a second delay period; and

(v) after the end of the second delay period, displaying the voltage signals representative of pH level.

16. A method of measuring the pH value of water held by a confinement vessel, said method comprising the steps of:

(a) providing a pH measurement system having a pH sensor for generating signals representative of pH level of water, a pH measurement circuit for converting signals output by said pH sensor to voltage signals representative of pH level; a pH level display for displaying the value of the water pH, a processor coupled to said pH measurement circuit and said pH level display for converting said voltage signals representative of pH level to pH level display driving signals, a manually operable calibration switch coupled to said processor for initiating a calibration routine performed by said processor, a manually operable start switch coupled to said processor for initiating a water sample measurement routine performed by said processor; and a source of electrical power for providing power to said sensor, said circuit, said processor and said display;

(b) immersing the pH sensor in a water sample of known pH value;

(c) applying electrical power to the sensor, the measurement circuit, the display, and the processor;

(d) operating the calibration switch to initiate the calibration routine;

(e) delaying the display of the voltage signals representative of pH level for a first delay period;

(f) after the end of the first delay period, displaying the voltage signals representative of the pH level of the water sample;

(g) comparing the displayed pH level value with the known pH value; and

(I) if the displayed pH level value does not match the known pH value:

(h) removing power from the system;

(j) reapplying power to the system; and

(j) repeating steps (b) through (g);

(II) when the displayed pH level value matches the known pH value, proceeding to a water sample measurement by:

(k) immersing the pH sensor in water of unknown pH value;

(l) applying electrical power to the sensor, the measurement circuit, the display, and the processor;

(m) operating the start switch to initiate the liquid sample measurement routine;

(n) delaying the display of the voltage signals representative of pH level for a second delay period; and

(o) after the end of the second delay period, displaying the voltage signals representative of pH level of the water sample.

17. The method of claim 16 wherein said step (b) of immersing is preceded by the step of selecting a water sample of pH value lying at the mid-point of the expected range of pH values of the water.

18. The method of claim 16 wherein said steps (b) and (c) are performed in reverse order.

19. The method of claim 16 wherein said steps (k) and (l) are performed in reverse order.